## What is claimed is:

1	1. A comparative inspection device comprising:		
2	a stage on which an object is mounted and which moves said object;		
3	a detector for detecting an image of said object on said stage, said image		
4	comprising a plurality of inspection image regions, and for outputting an image signal;		
5	and		
6	an image processing unit for receiving said image signal, determining a		
7	plurality of offsets for said plurality of inspection image regions relative to a plurality of		
8	corresponding reference image regions, and determining a selected offset out of a set of		
9	offsets of the plurality of offsets; wherein said set has at least one high reliability offset of		
10	said plurality of offsets.		
1	2. The comparative inspection device of claim 1, wherein said		
2	plurality of corresponding reference image regions are related to a time delayed plurality		
3	of inspection image regions.		
1	3. The comparative inspection device of claim 1, wherein said		
2	selected offset is used to align an entire inspection image and an entire reference image.		
1	4. The comparative inspection device of claim 1, wherein a reliability		
2	of an offset of said set is a high reliability offset if a pattern on an image region of said		
3	first image regions is dense and is a low reliability offset if said pattern is sparse.		
1	5. The comparative inspection device of claim 1 wherein a reliability		
2	of an offset of said set is evaluated by comparing said offset with a predicted offset from		
3	past variations of offsets.		
1	6. A method for aligning comparative inspection images comprising:		
2	an image detection means for detecting a plurality of inspection image		
3	regions;		
4	an offset determining means for detecting offsets for said plurality of		
5	inspection image regions;		
6	an offset selection means for determining a selected offset with a high		
7	reliability from said offsets; and		

8	an alignment means for aligning an entire inspection image and an entire
9	reference image using said selected offset.
1	7. A method for aligning a first image having a circuit pattern in a
2	semiconductor material with a second image, using an computer, said method
3	comprising:
4	dividing said first image into a plurality of regions;
5	dividing said second image into a plurality of corresponding regions;
6	determining a first region offset of a first region of said plurality of regions
7	from a first corresponding region of said plurality of corresponding regions; and
8	using said first region offset in determining an image offset for said first
9	image.
1	8. The method of claim 7 wherein said first region offset is an offset
2	with a high reliability.
1	9. The method of claim 7 further comprising:
2	determining a second region offset of a second region of said plurality of
3	regions from a second corresponding region of said plurality of corresponding regions;
4	and
5	wherein said first region offset is used in determining said image offset for
6	said first image, only if said first region offset has high reliability; and
7	wherein said determining said image offset for said first image further
8	comprises, using said second region offset, if said second region offset has high
9	reliability.
1	10. The method of claim 9 further comprising:
2	when said first region offset and said second region offset are used in
3	determining said image offset for said first image, said determining said image offset for
4	said first image further comprises:
5	determining a maximum correlation value using a first correlation matrix
6	associated with said first region offset and using a second correlation matrix associated
7	with said second region offset; and
8	selecting said image offset from a group consisting of said first region
9	offset and said second region, said selecting based on said maximum correlation value

1	1	1.	The method of claim 7 wherein, when images are received	
2	consecutively, for	ull-ima	age offset reliability of said image offset for said first image is	
3	evaluated and, if said full-image offset reliability is low, said first image is aligned using			
4	a past offset having a high full-image offset reliability.			
1	1	2.	The method of claim 7 wherein, when images are received	
2			raluation of full-image offset reliability for said image offset	
3	determines that full-image offset reliability is high, said image offset is stored as			
4	reference data for subsequent image alignments.			
•	reference data re	01 000	sequent mage angiments.	
1	1	.3.	The method of claim 7 wherein, when images are received	
2	consecutively, for	ull-im	age offset reliability is determined by comparing collected past	
3	offsets with high	h full-i	image offset reliability with said image offset.	
1	1	<b>.</b>	A method for adjusting detection sensitivity in the inspection of	
2	images of a sem	i-cond	luctor material, comprising:	
3	J		ining a reliability value for an image offset of an image;	
4	i	f said :	image offset has low reliability, evaluating if an alignment error is	
5	critical for said		_	
6		•	sive to said evaluating, if said alignment error is critical, lowering	
7	detection sensiti	-		
		,		
1	· 1	15.	The method of claim 14 wherein said image offset is calculated	
2	using a plurality of region offsets, wherein a region offset of said plurality of region			
3	offsets is determ	nined ı	using a part of said image.	
1	. 1	16.	The method of claim 14 wherein said alignment error is critical,	
2	when said align	ment e	error results in a detection error.	
1	1	17.	The method of claim 14 wherein said reliability is a full image	
2	offset reliability	<i>/</i> .		
1	1	18.	The method of claim 14 wherein said reliability value is based on a	
2	pattern density	of said	image.	

1	19. The method of claim 14 wherein said reliability value is based on a		
2	comparison of said image offset with a predicted offset, said predicted offset derived from		
3	past image offsets.		
1	20. The method of claim 19 wherein said predicted offset is derived		
2	using an extrapolation from a characteristic curve of past image offsets.		
1	21. The method of claim 19 wherein said predicted offset is derived		
2	using an extrapolation from a characteristic curve of past image offsets.		
1	22. A method for aligning an inspection image and a reference image,		
2	wherein a difference between said inspection image and said reference image is used in		
3	determining defects in a semiconductor material, said method comprising:		
4	partitioning said inspection image into a plurality of sub-images;		
5	partitioning said reference image into a corresponding plurality of sub-		
6	images;		
7	forming a plurality of sub-image sets, each sub-image set comprising a		
8	sub-image of said plurality of sub-images and a corresponding sub-image of said		
9	corresponding plurality of sub-images;		
10	determining a plurality of offsets for said plurality of sub-image sets;		
11	determining an image offset using a plurality of selected offsets from said		
12	plurality of offsets; and		
13	aligning said inspection image with said reference image using said image		
14	offset.		
1	23. The method of claim 22 wherein said plurality of selected offsets		
2	are high reliability offsets.		
1	24. The method of claim 23 wherein a selected offset of said plurality		
2	of selected offsets is of high reliability, when a correlation matrix of said selected offset		
3	has a largest value above a predetermined threshold.		
1	25. The method of claim 23 wherein a reliability for a selected offset of		
2	said plurality of selected offsets is determined using edge information in an associated		
3	sub-image of said plurality of sub-images.		

1	26. The method of claim 23 wherein a reliability for a selected offset is			
2	determined using a pattern density for an associated sub-image of said plurality of sub-			
3	images.			
1	27. The method of claim 22 wherein an offset of said plurality of			
2	offsets is determined using a correlation matrix for a sub-image set of said plurality of			
3	sub-image sets.			
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1	28. The method of claim 27 wherein said offset is a selected offset			
2	when said correlation matrix has a largest value above a predetermined threshold.			
1	29. The method of claim 22 wherein said determining said image offse			
2	using selected offsets, comprises using correlation matrices associated with said selected			
3	offsets to determine a composite correlation matrix, and using said composite correlation			
4	matrix to determine said image offset.			
1	30. A comparative inspection device for aligning a plurality of images			
2	of a semiconductor wafer, comprising:			
3	a detector, comprising a plurality of sensor channels, for receiving a			
4	current image of said plurality of images, wherein a sensor channel of said plurality of			
5	sensor channels receives a portion of said current image; and			
6	an image processing unit coupled to said sensor channel for determining			
7	an offset between said portion of said current image and a corresponding portion of a			
8	previous image of said plurality of images.			
1	31. The comparative inspection device of claim 30 wherein said offset			
2	is used in determining an alignment offset for said current image.			
1	32. The comparative inspection device of claim 30, wherein said			
1	32. The comparative inspection device of claim 30, wherein said determining said offset, comprises:			
2	receiving said corresponding portion by said sensor channel before said			
<i>3</i>	sensor channel receives said portion;			
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5	storing said corresponding portion in a delay memory; and			
6	comparing said portion in said sensor channel with said corresponding			
7	portion from said delay memory to determine said offset.			

1	3	3.	The comparative inspection device of claim 30, further comprising	
2	a delay memory for storing said corresponding portion.			
1	3	4.	The comparative inspection device of claim 30, wherein said offset	
2	is a high reliabil	ity of	fset.	
1	3	5.	The comparative inspection device of claim 30, further comprising	
2	a	dela	memory coupled to said plurality of sensor channels, said delay	
3	memory storing	emory storing corresponding portions of a previous image;		
4	V	here	in said image processing unit is coupled to said delay memory and	
5	said plurality of sensor channels, said image processing unit comprising:			
6	a	plura	ality of comparison channels, each comparison channel of said	
7	plurality of com	paris	on channels comprising, one sensor channel of said plurality of	
8	sensor channels	assoc	ciated with one portion of said current image and a section of said	
9	delay memory a	ssoci	ated with one corresponding portion of said previous image;	
10	a	n offs	set unit for determining a plurality of channel offsets for said	
11	plurality of com	paris	on channels; and	
12	a	n ima	ge offset unit for determining said alignment offset for said current	
13	image, using at l	least (	one high reliability offset from said plurality of channel offsets.	
1	3	6.	The comparative inspection device of claim 35, wherein said	
2	plurality of com	paris	on channels operate in parallel.	
1	3	7.	The comparative inspection device of claim 35, wherein said offset	
2	unit determines	a cha	nnel offset of said plurality of channel offsets by determining a	
3	correlation matr	ix for	a comparison channel of said plurality of comparison channels.	
1		8.	A computer program product stored on a computer readable	
2	medium for alig	ning	a first image having a circuit pattern in a semiconductor material	
3	with a second in	nage,	said computer program product comprising:	
4	c	ode f	or dividing said first image into a plurality of regions;	
5	c	ode f	or dividing said second image into a corresponding plurality of	
6	regions;			

code for determining a first region offset of a first region of said plurality
of regions from a first corresponding region of said corresponding plurality of regions;
and
code for using said first region offset in determining an image offset for
said first image.